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Deuk-Sung Lim

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07/17/2002

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EXAMINER

LEE, SUSAN SHUK YIN

ART UNIT

PAPER NUMBER

2852

DATE MAILED: 07/17/2002

16

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/603,595

Applicant(s)

LIM, DEUK-SUNG

Examiner

Susan S. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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### **DETAILED ACTION**

In view of the appeal brief filed on 5/7/02, PROSECUTION IS HEREBY REOPENED. New grounds of rejection set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Upon reconsideration of the claims and the appeal brief filed 5/7/02, the previous final rejection, paper No. 10, mailed 11/7/01, is hereby withdrawn. In addition, the previous indicated allowability of claims 4, 5, 11, 12, and 16 is hereby withdrawn in view of the newly found prior art to Tominaga (Japan, 435), Oka et al. (Japan, 427), and Kato et al. (6,112,047).

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: top cover 4 and developer 5. A proposed drawing correction or corrected

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drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 21a and 82. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "means for increasing expasibility [sic] of the optional auxiliary device, ... comprising a first paper transport path, a second paper transport path" where the optional auxiliary device is located on the side of the main body, a feeding unit is located on the other side of the main body, and a feeding cassette is mounted at a lower portion of the main body (claim 1) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Currently, Figs. 4 and 11 show three paper transport paths, but the first and the second paper transport paths 93 and 94 do not have any structural relationship to optional device 12'.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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***Specification***

The disclosure is objected under 37 CFR 1.75(a) because on page 4, lines 4-6, "the main body is formed with a first, a second, and a third paper transport paths for discharging the recording paper fed from the optional device" is not supported in any of the figures nor in the later parts of the specification on page 13, lines 14-16, stating "a first paper transport path 93 guides a paper sheet fed from multipurpose feeding unit assembly 20" not optional device 12 or 12' as stated on page 4, lines 4-6; and on page 13, lines 16-17, stating "a second paper transport path 94 guides a paper sheet fed from feeding cassette 15" not optional device 12 or 12' as stated on page 4, lines 4-6.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

Claims 3-8, 10-12, and 14-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claim 3, lines 1-3 and 7-8; claim 4, lines 15-17, and 21-22; claim 10, lines 1-3, and 7-8; claim 11, lines 10-11, and 16-17; claim 14, lines 1-2, 3, and 7-8; claim 16, lines 10-11, and 15-16, "said jammed paper removing means comprises ... a rectangular base member ... and a guiding means for guiding a backward and forward

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movement of the feeding unit assembly" is not supported by the original specification. In the specification page 5, lines 8-10, it states "the jammed paper removing means" is composed so that one of the cover plates is formed to be resolved with a hinge shaft in the center and an elastic member is provided between the cover plate and the base member. There is never any mention of the jammed paper removing means comprising the rectangular base member and the guiding means but rather the multiple purpose feeding unit assembly comprises such structures (specification, page 4, line 16 – page 5, line 3; page 10, lines 2-5).

As to claim 4, lines 5-7, "said feeding unit comprising: at least two cover plates ... base member; ... feeding rollers... and pinch rollers" are considered as new matter. The feeding unit is element 13 as described in specification, page 9, lines 5-7. According to the specification and the drawings, the feeding unit 13 does not comprise the above elements as claimed by the instant invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 4, 5, 11, and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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As to claim 1, line 10, "a means for increasing expansibility [sic] of the optional auxiliary device... comprising a first paper transport path, a second paper transport path, and a third paper transport path" is unclear. Since there is no mentioning in the original specification of "a means for increasing expansibility [sic]" except for the phrase "expansibility of the optional device" in the specification, page 8, line 18, it is not clear how the paths are means for increasing expansibility of the optional device 12 or optional device such as duplex module 12'. The first transport path 93 and the second transport path 94 do not have any structural relationship to optional device 12 or 12'. The first transport path 93 feeds paper sheets from the feeding unit assembly into the main body 10 not into the optional device 12 or 12'; and the second transport path 94 feeds paper sheets from the feeding cassette 15 into the main body 10 not into the optional device 12 or 12'. The specification is silent to how these paths are "means for increasing expansibility of the optional auxiliary device" if the optional auxiliary device is element 12 or 12'. It appears that applicant attempted to place several embodiments of the instant invention into one claim.

As to claim 4, lines 6-7, "the upper face" and "the base member" lack antecedent basis.

As to claim 4, line 18, "at least one cover plate mounted on an upper face of the base member" is vague and indefinite. There is already a previous recitation of "at least two cover plates mounted on the upper face of the base member" in claim 4, lines 6-7. How many cover plates are there mounted on the base member?

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As to claim 4, line 17, "a rectangular base member" is vague and indefinite since there is already a previous recitation of a base member in lines 6-7. Are these the same base member or different ones?

As to claim 4, line 19, "paper feeding means" is vague and unclear because in lines 8-11, "a plurality of powered feeding rollers" and "a plurality of pinch rollers" are the same as the paper feeding means.

As to claim 11, line 13, "paper feeding means" is vague and unclear because in lines 18-21, "a plurality of powered feeding rollers" and "a plurality of pinch rollers" are the same as the paper feeding means.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the first transport path 93 and the second transport path 94 does not have any structural relationship to optional device 12 or 12'. So, it is not clear how these paths are "means for increasing expansibility [sic] of the optional auxiliary device" as recited in claim 1, lines 10-11. In addition, it is not shown in the drawings where this is possible. It appears that applicant attempted to place several embodiments of the instant invention into one claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:



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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (Preamble - Jepson Claim) in view of Sasaki et al. (616).

Applicant's admitted prior art in the preamble discloses all elements of the apparatus except for the means for increasing expansibility of the optional auxiliary device, the means comprising a first paper transport path, a second paper transport path, and a third paper transport path for discharging the sheets of recording paper which the feeding unit has fed.

Sasaki et al. discloses a sheet-stacking device 60 comprising a sorter 57 and a sheet-feeder 59 for refeeding the sheets for duplexing in an image forming apparatus. The sorter 57 and sheet-feeder 59 read on the instant invention's optional auxiliary device and feeding unit, respectively. The means for increasing expansibility of the sorter 57 comprises paths such as 144, 125, and 132<sub>1</sub> - 132<sub>n</sub>. These paths or passages discharge sheets that are fed from sheet-feeder 59. Another cassette C<sub>3</sub> is disclosed with sheets that can be fed into the image forming apparatus by way of the sheet-feeder 59. Note Figs. 7 and 8; column 13, lines 3-65.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Applicant's admitted prior art in the preamble with that of Sasaki et al. to allow Applicant's admitted prior art to perform

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multiple functions in order to enhance copying capabilities desired by an operator. Such multiple functions include making duplex copies or superimposed copies as disclosed by Sasaki et al. (Note abstract). According to § 112, 6<sup>th</sup> par., for a claim with means plus function language, the claim shall be construed to cover the corresponding structure, material or acts described in the specification and equivalents thereof. Since there is no recitation of the phrase "means for increasing expansibility of the optional device" in the form of a means for performing a particular function nor of any showing of how the first path and second path increases the expansibility of the optional device in the original specification, the paper transport paths 144, 125, and 132<sub>1</sub> - 132<sub>n</sub> in the combination of Sasaki et al. in view of Takahashi are the equivalents of the instant invention's first paper transport path, the second paper transport path, and the third paper transport path because the paths of Sasaki et al. are located in the sorter device 57 and are means to increase the expansibility of the sorter device 57.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. (616) in view of Takahashi et al. (101) and Arai (828).

Sasaki et al. discloses a sheet-stacking device 60 comprising a sorter 57 and a sheet-feeder 59 for refeeding the sheets for duplexing in an image forming apparatus. The sorter 57 and sheet-feeder 59 read on the instant invention's optional auxiliary device and feeding unit, respectively. The means for increasing expansibility of the sorter 57 comprises paths such as 144, 125, and 132<sub>1</sub> - 132<sub>n</sub>. These paths or

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passages discharge sheets that are fed from sheet-feeder 59. Another cassette C<sub>3</sub> is disclosed with sheets that can be fed into the image forming apparatus by way of the sheet-feeder 59. Note Figs. 7 and 8; column 13, lines 3-65.

Sasaki et al. differs from the instant invention by not disclosing a feeding cassette mounted at a lower portion of the main body and the feeding unit is removable.

Takahashi et al. discloses using an optional large capacity feeder unit 6 and a paper feeding unit 4 that each has the same area as the area of both main body 1 and the second unit 3 that are located above the units 4 and 6. Note column 1, lines 31-47, column 2, lines 31-44, and Fig. 2.

Arai discloses a sheet jam removal device in a sheet conveying unit. The sheet jam removal device have a lower conveyor 32 or lower conveying guide 45 that is a rectangular base member, a cover plate or upper conveyor 33 or upper conveying guide 50, paper feeding means or upper convey rollers 51 on upper conveyor 33 and lower convey rollers 46 on the lower conveyor 32 or 45, and guiding means or guide rails 35 for guiding the sheet jam removal device back and forth. As shown in Figs. 7a - 7b, there is a hinge shaft (not numbered in figures) located on the upper conveyor 33 for pivoting the upper conveyor 33 when it is separated from the lower conveyor 32. The linkage 34 links the upper conveyor 33 and the lower conveyor 32 which is equivalent to the instant invention's elastic member. A handle shown in Fig. 2 is on the top of the front side of the main frame 30 of the sheet jam removal device for an operator to

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withdrawn the device from the image forming apparatus to access to it when a jam has occurred. When a jam occurs in this section of the image forming apparatus, a display section on the upper surface of the copying machine main body 1 will indicate a jam has occurred. Note column 7, line 39- column 8, line 65, and column 9, lines 19-45.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Takahashi et al. in order to expand supplies of paper to be copied without occupying more floor space. There is a desire for printing large volumes in some office environments thus a bigger supply of paper is needed so that an operator does not have to resupply in short periods of time. In a system such as Sasaki et al., the paper supply cassettes C<sub>1</sub>, C<sub>2</sub>, and C<sub>3</sub> may not be large enough for large volume printing. Additional units may be added to an image forming system to expand the paper supply, but the resultant system occupies a large area as disclosed by Takahashi et al. (note column 1, lines 15-23). Sasaki et al. also recognizes this problem where if additional accessories are mounted to the machine, the entire machine becomes quite bulky, costly, and complicated in structure (note column 3, lines 65-67 and column 4, lines 14-35). In order to solve such a problem, one of ordinary skill in the art at the time the invention was made, looks to Takahashi et al. to expand supplies of paper by providing optional devices to an image forming apparatus without having the apparatus occupying a large area. According to § 112, 6<sup>th</sup> par., for a claim with means plus function language, the claim shall be

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construed to cover the corresponding structure, material or acts described in the specification and equivalents thereof. Since there is no recitation of the phrase "means for increasing expansibility of the optional device" in the form of a means for performing a particular function nor of any showing of how the first path and second path increases the expansibility of the optional device in the original specification, the paper transport paths 144, 125, and 132<sub>1</sub> - 132<sub>n</sub> in the combination of Sasaki et al. in view of Takahashi are the equivalents of the instant invention's first paper transport path, the second paper transport path, and the third paper transport path because the paths of Sasaki et al. are located in the sorter device 57, an optional device, and perform the same function as the claimed "means to increase the expansibility of the optional device" by expanding the use of the sorter device 57 with more paper paths.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai because it is well known in the art that sheet jams occur along a sheet conveyance path in an image forming apparatus and that it is difficult to remove them sometimes especially when it is located in the main body of the image forming apparatus. Sheet jams can occur due to a build up of static electricity, humidity, or heat inside the image forming apparatus causing sheets to shift its moving position, curl up, or stick together. Sasaki et al. discloses that when a sheet conveying passage is long and complicated throughout the copying machine, the duplex copying structure and the sorter, the

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position where sheets can possibly jam is anywhere in the machine. This makes locating the paper jam more difficult. Also, since the intermediate tray and associated passages and feeding mechanism for copying are within the apparatus, it is not possible to locate the position of jam occurrence from outside of the machine, and therefore, it is necessary to open a cover or the like, thus removing the jam in a cumbersome manner (note Sasaki et al.; column 3, lines 34-48). In order to remove a sheet jam from a sheet path such as the sheet feeder 59 of Sasaki et al. which refeeds the sheet to get a duplex copy, one looks to Arai for an operator-accessible way that is noncumbersome (note Arai; column 2, lines 6-22) to maintain clearing of sheet jam in a re-feeding path of a photocopy with dual-sided printing capabilities. Since Sasaki et al. discloses in the prior art a paper jam can occur along the re-feeding passage due to the sheets being curled from pressure and heat from the first sided copying, one would look to Arai to correct the paper jam because both Sasaki et al. and Arai disclose the problematic area of where paper jams occur in a duplex copying system and Arai teaches the solution. Note Arai; column 1, lines 5-11 and lines 20 - 32.

Claims 2, 3, 6, 7, 9, 10, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (Preamble - Jepson Claim and specification, page 2, lines 17-18) in view of Arai (828), Tominaga (Japan, 435), and Oka et al. (Japan, 427).

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Applicant's admitted prior art in the preamble discloses all elements of the apparatus, process, and process of making except for apparatus, process, and process of making a feeding unit with a jammed paper removing means.

Arai discloses a sheet jam removal device in a sheet conveying unit. The sheet jam removal device have a lower conveyor 32 or lower conveying guide 45 that is a rectangular base member, a cover plate or upper conveyor 33 or upper conveying guide 50, paper feeding means 51 on upper conveyor 33 and 46 on the lower conveyor, and guiding means 35 for guiding the sheet jam removal device back and forth. As shown in Figs. 7a - 7b, there is a hinge shaft (not numbered in figures) located on the upper conveyor 33 for pivoting the upper conveyor 33 when it is separated from the lower conveyor 32. The linkage 34 links the upper conveyor 33 and the lower conveyor 32 which reads on the instant invention's elastic member. A handle shown in Fig. 2 is on the top of the front side of the main frame 30 of the sheet jam removal device for an operator to withdrawn the device from the image forming apparatus to access to it when a jam has occurred. When a jam occurs in this section of the image forming apparatus, a display section on the upper surface of the copying machine main body 1 will indicate a jam has occurred. Note column 7, line 39- column 8, line 65, and column 9, lines 19-45.

Tominaga discloses a medium processing device that eliminates jammed documents, replacing parts, checking and cleaning the inside of a device with an upper

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guide plate 5 and a lower guide plate 6 held together by a tension spring 18. An operator lifts up the upper guide plate 5 so that it pivots on shaft 11 and separates from lower guide plate 6 at an angle so that a jammed document can be removed. Note abstract and Figs. 1-6.

Oka et al. discloses printer using a holding member 501 with rollers 510 that slide on a fixed rail 500 to load the holding member 501 to the printer. The holding member can be used as a paper cassette or the like. At least one of the rollers 501 and the contact member 511 is formed by resin material (elastomer material) so that the shock from forcing the holding member into the printer can be absorbed. Note abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai because it is well known in the art that sheet jams occur along a sheet conveyance path in an image forming apparatus and that it is difficult to remove them sometimes especially when it is located in the main body of the image forming apparatus. Sheet jams can occur due to a build up of static electricity, humidity, or heat inside the image forming apparatus causing sheets to shift its moving position, curl up, or stick together. Sasaki et al. discloses that when a sheet conveying passage is long and complicated throughout the copying machine, the duplex copying structure and the sorter, the position where sheets can possibly jam is anywhere in the machine. This makes locating the paper jam more difficult. Also, since the intermediate tray and associated



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passages and feeding mechanism for copying are within the apparatus, it is not possible to locate the position of jam occurrence from outside of the machine, and therefore, it is necessary to open a cover or the like, thus removing the jam in a cumbersome manner (note Sasaki et al.; column 3, lines 34-48). In order to remove a sheet jam from a sheet path such as the sheet feeder 59 of Sasaki et al. which refeeds the sheet to get a duplex copy, one looks to Arai for an operator-accessible way that is noncumbersome (note Arai; column 2, lines 6-22) to maintain clearing of sheet jam in a re-feeding path of a photocopy with dual-sided printing capabilities. Since Sasaki et al. discloses in the prior art a paper jam can occur along the re-feeding passage due to the sheets being curled from pressure and heat from the first sided copying, one would look to Arai to correct the paper jam because both Sasaki et al. and Arai disclose the problematic area of where paper jams occur in a duplex copying system and Arai teaches the solution. Note Arai; column 1, lines 5-11 and lines 20 - 32.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Applicant's Admitted Prior Art with that of Arai, Tominaga, and Oka et al. because there is a problem with manufacturing the linkage of Arai due to the fact it requires many components or features such as an engage pin 70, a first slot 71, a second slot 72, a turning pin 65, and a grip portion 63 (note Arai; column 8, line 66 – column 9, line 18). The manufacturing of this linkage can be costly. Thus, using a tension spring 18 of Tominaga would be simple and cost

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effective since it reduces the number of components and features needed to allow two plates to separate and permit removal of jammed sheets or documents along a paper transport path.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Applicant's Admitted Prior Art with that of Arai, Tominaga, and Oka et al. because the main frame 30 of Arai is supported by two guide rails 35 that can be withdrawable frontward from the main body 1. When loading the main frame 30 back into the main body 1, an operator may force the main frame 30 into the main body 1 with too much force, thus dislocating its position or causing damage to the parts of the main frame. In order to solve this problem which Oka et al. recognizes, one looks to Oka et al. to use elastic rollers as a way to guide a member to slide on a fixed rail so that absorption of shock can be prevented as disclosed by Oka et al..

Since applicant's representatives argue using *In re Donaldson* and § 112, 6<sup>th</sup> par. for the limitations of "the jammed paper removing means", examiner points out to the applicant's representatives that MPEP 2106 (II) (C) says "the claimed means plus function limitations" are given "their broadest reasonable interpretation consistent with all corresponding structures or materials described in the specification and their equivalents including the manner in which the claimed functions are performed". See *Kemco Sales, Inc v. Control Papers Company, Inc.*, 208 F. 3d 1352, 54 USPQ2d 1308

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(Fed. Cir. 2000). Thus, in the specification, page 12, lines 14-17, it states that "the jammed paper removing means is so constructed that a [sic] one of cover plates 23 and 23' is formed to be resolved with a hinge shaft 81 in the center an elastic member such as a tension coil spring is provided between the cover plate 23 and base 21" and page 13, lines 2-3, it states, "the jammed paper removing means **may be** advantageously provided at the other cover plate 23'. This "jammed paper removing means" is interpreted as having alternatives since it is not clear from the language in the original specification. The "jammed paper removing means" may be the cover plate 23 or cover plate 23' or both plates 23, 23'. Since the Office personnel are to give the claimed means plus function limitations their broadest reasonable interpretations described by the specification, elements of the combination of references of Applicant's Admitted Prior Art in view of Arai, Tominaga, and Oka et al. are the same or equivalent to the elements of the instant invention as described in the specification of the instant invention which has been identified as corresponding to the claimed "jammed paper removing means".

Claims 2, 3, 7, 9, 10, and 13-15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (Preamble - Jepson Claim and specification, page 2, line 17-18) in view of Arai (828).

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Applicant's admitted prior art in the preamble discloses all elements of the apparatus, process, and process of making except for apparatus, process, and process of making a feeding unit with a jammed paper removing means.

Arai discloses a sheet jam removal device in a sheet conveying unit. The sheet jam removal device have a lower conveyor 32 or lower conveying guide 45 that is a rectangular base member, a cover plate or upper conveyor 33 or upper conveying guide 50, paper feeding means or upper convey rollers 51 on upper conveyor 33 and lower convey rollers 46 on the lower conveyor 32 or 45, and guiding means or guide rails 35 for guiding the sheet jam removal device back and forth. As shown in Figs. 7a - 7b, there is a hinge shaft (not numbered in figures) located on the upper conveyor 33 for pivoting the upper conveyor 33 when it is separated from the lower conveyor 32. The linkage 34 links the upper conveyor 33 and the lower conveyor 32 which is equivalent to the instant invention's elastic member. A handle shown in Fig. 2 is on the top of the front side of the main frame 30 of the sheet jam removal device for an operator to withdrawn the device from the image forming apparatus to access to it when a jam has occurred. When a jam occurs in this section of the image forming apparatus, a display section on the upper surface of the copying machine main body 1 will indicate a jam has occurred. Note column 7, line 39- column 8, line 65, and column 9, lines 19-45.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai because it

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is well known in the art that sheet jams occur along a sheet conveyance path in an image forming apparatus and that it is difficult to remove them sometimes especially when it is located in the main body of the image forming apparatus. Sheet jams can occur due to a build up of static electricity, humidity, or heat inside the image forming apparatus causing sheets to shift its moving position, curl up, or stick together. Sasaki et al. discloses that when a sheet conveying passage is long and complicated throughout the copying machine, the duplex copying structure and the sorter, the position where sheets can possibly jam is anywhere in the machine. This makes locating the paper jam more difficult. Also, since the intermediate tray and associated passages and feeding mechanism for copying are within the apparatus, it is not possible to locate the position of jam occurrence from outside of the machine, and therefore, it is necessary to open a cover or the like, thus removing the jam in a cumbersome manner (note Sasaki et al.; column 3, lines 34-48). In order to remove a sheet jam from a sheet path such as the sheet feeder 59 of Sasaki et al. which refeeds the sheet to get a duplex copy, one looks to Arai for an operator-accessible way that is noncumbersome (note Arai; column 2, lines 6-22) to maintain clearing of sheet jam in a re-feeding path of a photocopy with dual-sided printing capabilities. Since Sasaki et al. discloses in the prior art a paper jam can occur along the re-feeding passage due to the sheets being curled from pressure and heat from the first sided copying, one would look to Arai to correct the paper jam because both Sasaki et al. and Arai disclose the problematic area

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of where paper jams occur in a duplex copying system and Arai teaches the solution. Note Arai; column 1, lines 5-11 and lines 20 - 32. The linkage 34 of Arai's sheet jam removal device is equivalent to the instant invention's elastic spring member as disclosed in the "jammed paper removing means" under § 112, 6<sup>th</sup> par. where they both perform the identical function in substantially the same way to achieve substantially the same result. See *Caterpillar Inc, v. Deere & Co.*, 224 F.3d 1374, 56 USPQ2d 1305 (Fed. Cir. 2000). Finding of statutory equivalence under § 112, 6<sup>th</sup> par. does not require "component by component" equivalence between the relevant structure identified in patent and portion of accused device asserted to be structurally equivalent, even though analysis of equivalents under § 112, 6<sup>th</sup> par. is similar to that under doctrine of equivalents, since limitation of means-plus-function claim is overall structure corresponding to claimed function, and individual components, if any, of that overall structure are not individual limitations; structures with different numbers of parts therefore may be equivalent under § 112, 6<sup>th</sup> par., since relevant structure is that which "corresponds" to claimed function, and further deconstruction or parsing is incorrect. See *IMS Tech.*, 206 F3d at 1435, 54 USPQ2d at 1138 (Fed. Cir. 2000); and *Odetics Inc.*, 51 USPQ 2d at 1225. The specification, page 12, lines 14-17, states " the jammed paper removing means is so constructed that a [sic] one of cover plates 23 and 23' is formed to be revolved with a hinge shaft 81 in the center and an elastic member such as a tension coil spring is provided between cover plate 23 and base 21". Since there is

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no explanation in the specification as to how the elastic member functions as part of a "jam paper removal means" except that it is "provided between cover plate 23 and base 21". The function of the elastic member from Figs. 9 and 10, is to allow the cover plate 23, after an operator lift it up, to stay at a position so the operator removes a sheet jam caught in between the cover plate 23 and base 21; and to keep the cover plate 23 down and mounted to base 21 when the cover plate is placed in its closed position. The linkage 34 of Arai performs the same function such as allowing the upper conveyor 33 after an operator lift it up to stay at a position so the operator removes a sheet jam caught in between the two conveyors; and keeping the upper conveyor 33 down and mounted to lower conveyor 32 when the upper conveyor 33 is in its closed position. Note column 7, line 48 – column 9, line 67. Thus, a person of ordinary skill in the art would have recognized the interchangeability of the linkage of Arai for the elastic member disclosed by the specification because they perform the same function in substantially the same way to achieve substantially the same result which is removal of the jammed sheet. The guiding rails 35 of Arai's sheet jam removal device is equivalent to the instant invention's guiding rollers as disclosed in the "guiding means" under § 112, 6<sup>th</sup> par. where they both perform the identical function in substantially the same way to achieve substantially the same result. In the specification, page 10, lines 14-16, it states "multipurpose feeding unit assembly 20 can be moved backward and forward by guiding rollers 26 and 27, so as to be slidingly received in receiving space 11 of main

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body 10". The guiding rollers' functions are to move the multipurpose feeding unit assembly backward and forward so that the unit can slide into and out of the main body. Arai's two guide rails 35 supports the main frame and extends with respect to the copying machine main body 1 such that the main frame 30 is withdrawable frontward from the main body 1. It is clear from Arai that the guide rails 35 also allows the main frame 30 to move backward into the main body 1. Note column 7, lines 56-59. Thus, a person of ordinary skill in the art would have recognized the interchangeability of the guide rails 35 of Arai for the guiding rollers disclosed by the specification.

Since applicant's representatives argue using *In re Donaldson* and § 112, 6<sup>th</sup> par. for the limitations of "the jammed paper removing means", examiner points out to the applicant's representatives that MPEP 2106 (II) (C) says "the claimed means plus function limitations" are given "their broadest reasonable interpretation consistent with all corresponding structures or materials described in the specification and their equivalents including the manner in which the claimed functions are performed". See *Kemco Sales, Inc v. Control Papers Company, Inc.*, 208 F. 3d 1352, 54 USPQ2d 1308 (Fed. Cir. 2000). Thus, in the specification, page 12, lines 14-17, it states that "the jammed paper removing means is so constructed that a [sic] one of cover plates 23 and 23' is formed to be resolved with a hinge shaft 81 in the center an elastic member such as a tension coil spring is provided between the cover plate 23 and base 21" and page



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13, lines 2-3, it states, "the jammed paper removing means **may be** advantageously provided at the other cover plate 23'. This "jammed paper removing means" is interpreted as having alternatives since it is not clear from the language in the original specification. The "jammed paper removing means" may be the cover plate 23 or cover plate 23' or both plates 23, 23'. Since the Office personnel are to give the claimed means plus function limitations their broadest reasonable interpretations described by the specification, elements of the combination of references of Applicant's Admitted Prior Art in view of Arai are the same or equivalent to the elements of the instant invention as described in the specification of the instant invention which has been identified as corresponding to the claimed "jammed paper removing means".

Claims 2, 3, 7, 9, 10, and 13-15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. (616) in view of Arai (828).

Sasaki et al. discloses a sheet-stacking device 60 comprising a sorter 57 and a sheet-feeder 59 for refeeding the sheets for duplexing in an image forming apparatus. The sorter 57 and sheet-feeder 59 read on the instant invention's optional auxiliary device and feeding unit, respectively. The means for increasing expansibility of the sorter 57 comprises paths such as 144, 125, and 132<sub>1</sub> - 132<sub>n</sub>. These paths or passages discharge sheets that are fed from sheet-feeder 59. Another cassette C<sub>3</sub> with sheets that can be fed into the image forming apparatus by way of the sheet-feeder 59. Note Figs. 7 and 8; column 13, lines 3-65.

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Sasaki et al. discloses all elements of the apparatus, process, and process of making except for apparatus, process, and process of making a feeding unit with a jammed paper removing means.

Arai discloses a sheet jam removal device in a sheet conveying unit. The sheet jam removal device have a lower conveyor 32 or lower conveying guide 45 that is a rectangular base member, a cover plate or upper conveyor 33 or upper conveying guide 50, paper feeding means or upper convey rollers 51 on upper conveyor 33 and lower convey rollers 46 on the lower conveyor 32 or 45, and guiding means or guide rails 35 for guiding the sheet jam removal device back and forth. As shown in Figs. 7a - 7b, there is a hinge shaft (not numbered in figures) located on the upper conveyor 33 for pivoting the upper conveyor 33 when it is separated from the lower conveyor 32. The linkage 34 links the upper conveyor 33 and the lower conveyor 32 which is equivalent to the instant invention's elastic member. A handle shown in Fig. 2 is on the top of the front side of the main frame 30 of the sheet jam removal device for an operator to withdrawn the device from the image forming apparatus to access to it when a jam has occurred. When a jam occurs in this section of the image forming apparatus, a display section on the upper surface of the copying machine main body 1 will indicate a jam has occurred. Note column 7, line 39- column 8, line 65, and column 9, lines 19-45.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai because it

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is well known in the art that sheet jams occur along a sheet conveyance path in an image forming apparatus and that it is difficult to remove them sometimes especially when it is located in the main body of the image forming apparatus. Sheet jams can occur due to a build up of static electricity, humidity, or heat inside the image forming apparatus causing sheets to shift its moving position, curl up, or stick together. Sasaki et al. discloses that when a sheet conveying passage is long and complicated throughout the copying machine, the duplex copying structure and the sorter, the position where sheets can possibly jam is anywhere in the machine. This makes locating the paper jam more difficult. Also, since the intermediate tray and associated passages and feeding mechanism for copying are within the apparatus, it is not possible to locate the position of jam occurrence from outside of the machine, and therefore, it is necessary to open a cover or the like, thus removing the jam in a cumbersome manner (note Sasaki et al.; column 3, lines 34-48). In order to remove a sheet jam from a sheet path such as the sheet feeder 59 of Sasaki et al. which refeeds the sheet to get a duplex copy, one looks to Arai for an operator-accessible way that is noncumbersome (note Arai; column 2, lines 6-22) to maintain clearing of sheet jam in a re-feeding path of a photocopy with dual-sided printing capabilities. Since Sasaki et al. discloses in the prior art a paper jam can occur along the re-feeding passage due to the sheets being curled from pressure and heat from the first sided copying, one would look to Arai to correct the paper jam because both Sasaki et al. and Arai disclose the problematic area

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no explanation in the specification as to how the elastic member functions as part of a "jam paper removal means" except that it is "provided between cover plate 23 and base 21". The function of the elastic member from Figs. 9 and 10, is to allow the cover plate 23, after an operator lift it up, to stay at a position so the operator removes a sheet jam caught in between the cover plate 23 and base 21; and to keep the cover plate 23 down and mounted to base 21 when the cover plate is placed in its closed position. The linkage 34 of Arai performs the same function such as allowing the upper conveyor 33 after an operator lift it up to stay at a position so the operator removes a sheet jam caught in between the two conveyors; and keeping the upper conveyor 33 down and mounted to lower conveyor 32 when the upper conveyor 33 is in its closed position. Note column 7, line 48 – column 9, line 67. Thus, a person of ordinary skill in the art would have recognized the interchangeability of the linkage of Arai for the elastic member disclosed by the specification because they perform the same function in substantially the same way to achieve substantially the same result which is removal of the jammed sheet. The guiding rails 35 of Arai's sheet jam removal device is equivalent to the instant invention's guiding rollers as disclosed in the "guiding means" under § 112, 6<sup>th</sup> par. where they both perform the identical function in substantially the same way to achieve substantially the same result. In the specification, page 10, lines 14-16, it states "multipurpose feeding unit assembly 20 can be moved backward and forward by guiding rollers 26 and 27, so as to be slidably received in receiving space 11 of main

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Since applicant's representatives argue using *In re Donaldson* and § 112, 6<sup>th</sup> par. for the limitations of "the jammed paper removing means", examiner points out to the applicant's representatives that MPEP 2106 (II) (C) says "the claimed means plus function limitations" are given "their broadest reasonable interpretation consistent with all corresponding structures or materials described in the specification and their equivalents including the manner in which the claimed functions are performed". See *Kemco Sales, Inc v. Control Papers Company, Inc.*, 208 F. 3d 1352, 54 USPQ2d 1308 (Fed. Cir. 2000). Thus, in the specification, page 12, lines 14-17, it states that "the jammed paper removing means is so constructed that a [sic] one of cover plates 23 and 23' is formed to be resolved with a hinge shaft 81 in the center an elastic member such as a tension coil spring is provided between the cover plate 23 and base 21" and page 13, lines 2-3, it states, "the jammed paper removing means **may be** advantageously

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provided at the other cover plate 23'. This "jammed paper removing means" is interpreted as having alternatives since it is not clear from the language in the original specification. The "jammed paper removing means" may be the cover plate 23 or cover plate 23' or both plates 23, 23'. Since the Office personnel are to give the claimed means plus function limitations their broadest reasonable interpretations described by the specification, elements of the combination of references of Sasaki et al. in view of Arai are the same or equivalent to the elements of the instant invention as described in the specification of the instant invention which has been identified as corresponding to the claimed "jammed paper removing means".

Claims 2, 3, 6, 7, 9, 10, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. (616) in view of Arai (828), Tominaga (Japan, 435) and Oka et al. (Japan, 427).

Sasaki et al. discloses a sheet-stacking device 60 comprising a sorter 57 and a sheet-feeder 59 for refeeding the sheets for duplexing in an image forming apparatus. The sorter 57 and sheet-feeder 59 read on the instant invention's optional auxiliary device and feeding unit, respectively. The means for increasing expansibility of the sorter 57 comprises paths such as 144, 125, and 132<sub>1</sub> - 132<sub>n</sub>. These paths or passages discharge sheets that are fed from sheet-feeder 59. Another cassette C<sub>3</sub> with sheets that can be fed into the image forming apparatus by way of the sheet-feeder 59. Note Figs. 7 and 8; column 13, lines 3-65.

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Sasaki et al. discloses all elements of the apparatus, process, and process of making except for apparatus, process, and process of making a feeding unit with a jammed paper removing means.

Arai discloses a sheet jam removal device in a sheet conveying unit. The sheet jam removal device have a lower conveyor 32 or lower conveying guide 45 that is a rectangular base member, a cover plate or upper conveyor 33 or upper conveying guide 50, paper feeding means or upper convey rollers 51 on upper conveyor 33 and lower convey rollers 46 on the lower conveyor 32 or 45, and guiding means or guide rails 35 for guiding the sheet jam removal device back and forth. As shown in Figs. 7a - 7b, there is a hinge shaft (not numbered in figures) located on the upper conveyor 33 for pivoting the upper conveyor 33 when it is separated from the lower conveyor 32. The linkage 34 links the upper conveyor 33 and the lower conveyor 32 which is equivalent to the instant invention's elastic member. A handle shown in Fig. 2 is on the top of the front side of the main frame 30 of the sheet jam removal device for an operator to withdrawn the device from the image forming apparatus to access to it when a jam has occurred. When a jam occurs in this section of the image forming apparatus, a display section on the upper surface of the copying machine main body 1 will indicate a jam has occurred. Note column 7, line 39- column 8, line 65, and column 9, lines 19-45.

Tominaga discloses a medium processing device that eliminates jammed documents, replacing parts, checking and cleaning the inside of a device with an upper



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guide plate 5 and a lower guide plate 6 held together by a tension spring 18. An operator lifts up the upper guide plate 5 so that it pivots on shaft 11 and separates from lower guide plate 6 at an angle so that a jammed document can be removed. Note abstract and Figs. 1-6.

Oka et al. discloses printer using a holding member 501 with rollers 510 that slide on a fixed rail 500 to load the holding member 501 to the printer. The holding member can be used as a paper cassette or the like. At least one of the rollers 501 and the contact member 511 is formed by resin material (elastomer material) so that the shock from forcing the holding member into the printer can be absorbed. Note abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai, Tominaga and Oka et al. because it is well known in the art that sheet jams occur along a sheet conveyance path in an image forming apparatus and that it is difficult to remove them sometimes especially when it is located in the main body of the image forming apparatus. Sheet jams can occur due to a build up of static electricity, humidity, or heat inside the image forming apparatus causing sheets to shift its moving position, curl up, or stick together. Sasaki et al. discloses that when a sheet conveying passage is long and complicated throughout the copying machine, the duplex copying structure and the sorter, the position where sheets can possibly jam is anywhere in the machine. This makes locating the paper jam more difficult. Also, since the intermediate tray and

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associated passages and feeding mechanism for copying are within the apparatus, it is not possible to locate the position of jam occurrence from outside of the machine, and therefore, it is necessary to open a cover or the like, thus removing the jam in a cumbersome manner (note Sasaki et al.; column 3, lines 34-48). In order to remove a sheet jam from a sheet path such as the sheet feeder 59 of Sasaki et al. which refeeds the sheet to get a duplex copy, one looks to Arai for an operator-accessible way that is noncumbersome (note Arai; column 2, lines 6-22) to maintain clearing of sheet jam in a re-feeding path of a photocopy with dual-sided printing capabilities. Since Sasaki et al. discloses in the prior art a paper jam can occur along the re-feeding passage due to the sheets being curled from pressure and heat from the first sided copying, one would look to Arai to correct the paper jam because both Sasaki et al. and Arai disclose the problematic area of where paper jams occur in a duplex copying system and Arai teaches the solution. Note Arai; column 1, lines 5-11 and lines 20 - 32.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai, Tominaga, and Oka et al. because there is a problem with manufacturing the linkage of Arai due to the fact it requires many components or features such as an engage pin 70, a first slot 71, a second slot 72, a turning pin 65, and a grip portion 63 (note Arai; column 8, line 66 – column 9, line 18). The manufacturing of this linkage can be costly. Thus, using a tension spring 18 of Tominaga would be simple and cost effective since it reduces the

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number of components and features needed to allow two plates to separate and permit removal of jammed sheets or documents along a paper transport path.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai, Tominaga, and Oka et al. because the main frame 30 of Arai is supported by two guide rails 35 that can be withdrawable frontward from the main body 1. When loading the main frame 30 back into the main body 1, an operator may force the main frame 30 into the main body 1 with too much force, thus dislocating its position or causing damage to the parts of the main frame. In order to solve this problem which Oka et al. recognizes, one looks to Oka et al. to use elastic rollers as a way to guide a member to slide on a fixed rail so that absorption of shock can be prevented as disclosed by Oka et al..

Since applicant's representatives argue using *In re Donaldson* and § 112, 6<sup>th</sup> par. for the limitations of "the jammed paper removing means", examiner points out to the applicant's representatives that MPEP 2106 (II) (C) says "the claimed means plus function limitations" are given "their broadest reasonable interpretation consistent with all corresponding structures or materials described in the specification and their equivalents including the manner in which the claimed functions are performed". See *Kemco Sales, Inc v. Control Papers Company, Inc.*, 208 F. 3d 1352, 54 USPQ2d 1308 (Fed. Cir. 2000). Thus, in the specification, page 12, lines 14-17, it states that "the jammed paper removing means is so constructed that a [sic] one of cover plates 23 and

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23' is formed to be resolved with a hinge shaft 81 in the center an elastic member such as a tension coil spring is provided between the cover plate 23 and base 21" and page 13, lines 2-3, it states, "the jammed paper removing means **may be** advantageously provided at the other cover plate 23'. This "jammed paper removing means" is interpreted as having alternatives since it is not clear from the language in the original specification. The "jammed paper removing means" may be the cover plate 23 or cover plate 23' or both plates 23, 23'. Since the Office personal are to give the claimed means plus function limitations their broadest reasonable interpretations described by the specification, elements of the combination of references of Sasaki et al. in view of Arai, Tominaga, and Oka et al. are the same or equivalent to the elements of the instant invention as described in the specification of the instant invention which has been identified as corresponding to the claimed "jammed paper removing means".

Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (Preamble - Jepson Claim) in view of Arai (828), Tominaga (Japan, 435), and Oka et al. (Japan, 427) as applied to claims 2, 3, 6, 7, 9, 10, and 13-18 above, and further in view of Mochimaru (299).

Applicant's Admitted Prior Art (Preamble - Jepson Claim) as modified by Arai, Tominaga, and Oka et al. differ from the instant invention by not disclosing a plurality of position guiding means fixed to a rear side of the base member and a corresponding

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plurality of position guiding holes formed in an inner portion of the main body into which the position guiding members are respectively inserted.

Mochimaru discloses an image forming kit 20 that is loaded into the housing 10 of an image forming apparatus by positioning pins 52. Note column 3, lines 16-39 and Fig. 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Applicant's Admitted Prior Art (Preamble - Jepson Claim) in view of Arai, Tominaga, and Oka et al. with that of Mochimaru so that the main frame 30 of Arai can be easily positioned within the image forming apparatus without difficulty as the frame 30 is loaded back into the image forming apparatus. It is inherent in Mochimaru that the positioning pins are received in respective holes so that the removable main frame 30 can be securely positioned inside the image forming apparatus.

Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. (616) in view of Arai (828), Tominaga (Japan, 435) and Oka et al. (Japan, 427), as applied to claims 2, 3, 6, 7, 9, 10, and 13-18 above, and further in view of Mochimaru (299).

Sasaki et al. as modified by Arai, Tominaga, and Oka et al., differ from the instant invention by not disclosing a plurality of position guiding means fixed to a rear side of the base member and a corresponding plurality of position guiding holes formed in an

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. in view of Arai, Tominaga, and Oka et al. with that of Mochimaru so that the main frame 30 of Arai can be easily positioned within the image forming apparatus without difficulty as the frame 30 is loaded back into the image forming apparatus. It is inherent in Mochimaru that the positioning pins are received in respective holes so that the removable main frame 30 can be securely positioned inside the image forming apparatus.

Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. (616) in view of Arai (828) in view of Tominaga (Japan, 435), Kato et al. (047), and Oka et al. (Japan, 427).

Sasaki et al. discloses a sheet-stacking device 60 comprising a sorter 57 and a sheet-feeder 59 for refeeding the sheets for duplexing in an image forming apparatus. The sorter 57 and sheet-feeder 59 read on the instant invention's optional auxiliary device and feeding unit, respectively. The means for increasing expansibility of the sorter 57 comprises paths such as 144, 125, and 132<sub>1</sub> - 132<sub>n</sub>. These paths or

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passages discharge sheets that are fed from sheet-feeder 59. Another cassette C<sub>3</sub> with sheets that can be fed into the image forming apparatus by way of the sheet-feeder 59.

Note Figs. 7 and 8; column 13, lines 3-65.

Sasaki et al. discloses all elements of the apparatus, and process except for apparatus and process of providing a feeding unit with a jammed paper removing means.

Arai discloses a sheet jam removal device in a sheet conveying unit. The sheet jam removal device have a lower conveyor 32 or lower conveying guide 45 that is a rectangular base member, a cover plate or upper conveyor 33 or upper conveying guide 50, paper feeding means or upper convey rollers 51 on upper conveyor 33 and lower convey rollers 46 on the lower conveyor 32 or 45, and guiding means or guide rails 35 for guiding the sheet jam removal device back and forth. As shown in Figs. 7a - 7b, there is a hinge shaft (not numbered in figures) located on the upper conveyor 33 for pivoting the upper conveyor 33 when it is separated from the lower conveyor 32. The linkage 34 links the upper conveyor 33 and the lower conveyor 32 which is equivalent to the instant invention's elastic member. A handle shown in Fig. 2 is on the top of the front side of the main frame 30 of the sheet jam removal device for an operator to withdrawn the device from the image forming apparatus to access to it when a jam has occurred. When a jam occurs in this section of the image forming apparatus, a display

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section on the upper surface of the copying machine main body 1 will indicate a jam has occurred. Note column 7, line 39- column 8, line 65, and column 9, lines 19-45.

Tominaga discloses a medium processing device that eliminates jammed documents, replacing parts, checking and cleaning the inside of a device with an upper guide plate 5 and a lower guide plate 6 held together by a tension spring 18. An operator lifts up the upper guide plate 5 so that it pivots on shaft 11 and separates from lower guide plate 6 at an angle so that a jammed document can be removed. Note abstract and Figs. 1-6.

Kato et al. discloses an image forming apparatus with a paper jam in the sheet transport path 180 and a transport cover 182 having two cover parts 188 and 190. An operator can raise one or both of the cover parts 188 and 190 to uncover the path 180 to remove the paper jam. If the transport cover 182 is a single member, then the maximum angle to which the cover 182 can be opened is only  $\theta$ . The resulting space is too narrow for the operator to access the path 180. Note column 11, line 62 – column 12, line 31; and Fig. 20.

Oka et al. discloses printer using a holding member 501 with rollers 510 that slide on a fixed rail 500 to load the holding member 501 to the printer. The holding member can be used as a paper cassette or the like. At least one of the rollers 501 and the contact member 511 is formed by resin material (elastomer material) so that the shock from forcing the holding member into the printer can be absorbed. Note abstract.



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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai, Tominaga and Oka et al. because it is well known in the art that sheet jams occur along a sheet conveyance path in an image forming apparatus and that it is difficult to remove them sometimes especially when it is located in the main body of the image forming apparatus. Sheet jams can occur due to a build up of static electricity, humidity, or heat inside the image forming apparatus causing sheets to shift its moving position, curl up, or stick together. Sasaki et al. discloses that when a sheet conveying passage is long and complicated throughout the copying machine, the duplex copying structure and the sorter, the position where sheets can possibly jam is anywhere in the machine. This makes locating the paper jam more difficult. Also, since the intermediate tray and associated passages and feeding mechanism for copying are within the apparatus, it is not possible to locate the position of jam occurrence from outside of the machine, and therefore, it is necessary to open a cover or the like, thus removing the jam in a cumbersome manner (note Sasaki et al.; column 3, lines 34-48). In order to remove a sheet jam from a sheet path such as the sheet feeder 59 of Sasaki et al. which refeeds the sheet to get a duplex copy, one looks to Arai for an operator-accessible way that is noncumbersome (note Arai; column 2, lines 6-22) to maintain clearing of sheet jam in a re-feeding path of a photocopy with dual-sided printing capabilities. Since Sasaki et al. discloses in the prior art a paper jam can occur along the re-feeding passage due to the

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sheets being curled from pressure and heat from the first sided copying, one would look to Arai to correct the paper jam because both Sasaki et al. and Arai disclose the problematic area of where paper jams occur in a duplex copying system and Arai teaches the solution. Note Arai; column 1, lines 5-11 and lines 20 - 32.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai, Tominaga, Kato et al., and Oka et al. because there is a problem with manufacturing the linkage of Arai due to the fact it requires many components or features such as an engage pin 70, a first slot 71, a second slot 72, a turning pin 65, and a grip portion 63 (note Arai; column 8, line 66 – column 9, line 18). The manufacturing of this linkage can be costly. Thus, using a tension spring 18 of Tominaga would be simple and cost effective since it reduces the number of components and features needed to allow two plates to separate and permit removal of jammed sheets or documents along a paper transport path.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai, Tominaga, Kato et al., and Oka et al. because if only one cover of Arai was used to remove paper jams the cover would have to be very large in order to remove different sizes of paper used. This would make the paper removal system of Arai cumbersome to operate. One looks to Kato et al. in order to solve this problem where two shorter covers are used to uncover a sheet path to remove the sheet jam.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sasaki et al. with that of Arai, Tominaga, Kato et al., and Oka et al. because the main frame 30 of Arai is supported by two guide rails 35 that can be withdrawable frontward from the main body 1. When loading the main frame 30 back into the main body 1, an operator may force the main frame 30 into the main body 1 with too much force, thus dislocating its position or causing damage to the parts of the main frame. In order to solve this problem which Oka et al. recognizes, one looks to Oka et al. to use elastic rollers as a way to guide a member to slide on a fixed rail so that absorption of shock can be prevented as disclosed by Oka et al..

Since applicant's representatives argue using *In re Donaldson* and § 112, 6<sup>th</sup> par. the Examiner give the claimed means plus function limitations their broadest reasonable interpretations described by the specification. Thus, the elements of the combination of references of Sasaki et al. in view of Arai, Tominaga, Kato et al., and Oka et al. are the same or equivalent to the elements of the instant invention as described in the specification of the instant invention which has been identified as corresponding to the claimed "jammed paper removing means".

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Iwaki et al. discloses an image forming apparatus.

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***Response to Arguments***

Applicant's arguments with respect to claims 1-3, 6-10, 13-15, and 17-19 have been considered but are moot in view of the new ground(s) of rejection.

***Remarks***

Examiner wants to point out to applicant's representatives that claim 1 was never addressed except in part III, Status of Claims, in the appeal brief filed 5/7/02. In the same appeal brief, page 6, lines 8-10 in the summary of invention, the statements "when paper is jammed in feeding unit assembly 20, a user pulls assembly 20 in the direction of arrow E of Fig. 6 (Specification 15:4-12), which is resisted by the elastic member (e.g. tension coil spring) which stores mechanical energy when stretched" is erroneous. Specifically the statement "which is resisted by the elastic member (e.g. tension coil spring)" is not supported by the specification nor is inherent from the specification or the drawings. On the same page 6, lines 17-19, the statement "guiding members 71 are entered into holes 74 (*id.*), and the stored mechanical energy of the elastic member is released as this occurs" is erroneous. Specifically the statement "the stored mechanical energy of the elastic member is released as this occurs" is not supported by the specification nor is inherent from the specification or the drawings.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan S. Lee whose telephone number is 703-308-

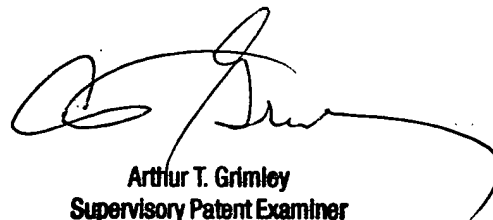
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2138. The examiner can normally be reached on Mon. - Fri., 10:30-8:00, Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Art Grimley can be reached on 703-308-1373. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3432 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

SL  
July 11, 2002



Arthur T. Grimley  
Supervisory Patent Examiner  
Technology Center 2800